

## **AMENDMENTS TO THE SPECIFICATION**

Please replace paragraphs [0024]-[0025] with the following amended paragraphs:

[0024] FIG. 1 illustrates schematically an imaging system 10, in accordance with one embodiment of the present invention. The imaging system 10 is configured to provide an image corresponding to the conductivity distribution of a region 12, e.g., a vascular access. As shown in FIG. 1, the imaging system 10 provides electrodes 14 positioned in a plurality of planes 16 that intersect the region 12. For instance, the imaging system 10 may provide a first set of electrodes 14a that are located in a first current injection plane 16a. In addition, the imaging system 10 may provide a second set of electrodes 14b that are located in a second current injection plane 16b ~~16a~~. The imaging system 10 may also provide a third set of electrodes 14c that are located in a measurement plane 16c, the measurement plane 16c being located in between the first and second current injection planes 16a, 16b. The electrodes 14a, 14b, 14c in the three different planes 16a, 16b, 16c are connected to each other by, and are controlled by, a control system 18, additional features of which are set forth in greater detail below.

[0025] The imaging system 10 is configured such that the third set of electrodes 14c are moveable within the measurement plane 16c. Specifically, the third set of electrodes 14c may be rotatable within the measurement plane 16c around a central axis 20 that is perpendicular to the measurement plane 16c. In addition, the imaging system 10 is configured such that the third set of electrodes 14c that are located in a measurement plane 16c are moveable relative to the first and second sets of electrodes 14a, 14b. Specifically, the third set of electrodes 14c may be moveable in an axial direction, e.g., perpendicular to the measurement plane 16c, relative to the first and second sets of electrodes 14a, 14b.

Please replace paragraph [0030] with the following amended paragraph:

[0030] FIG. 5 is a cross-sectional view that illustrates an electrode, e.g., electrodes 14a, 14b, 14c, according to one embodiment of the present invention. The electrodes 14 ~~maybe~~ may be comprised of AgCl. The electrodes 14 may also include a gel storage container 230 for storing conductive gel. The gel stored within the gel storage container 230 is squeezed or otherwise expelled by the second biasing element, e.g., the balloon, along a small channel 232 to, e.g., the

skin of a patient. According to this embodiment, the electrodes 14 are configured to obtain lower electrode-skin contact impedance as compared to conventional electrodes.

Please replace paragraphs [0034] – [0035] with the following amended paragraphs:

[0034] According to one embodiment, the processor 302 is configured to process the various voltage measurements taken by the voltage measurement device so as to generate a current density distribution in the third plane 16c, as set forth more fully below. Furthermore, the processor 302 may be further configured to generate an image corresponding to the current density distribution in the third plane 16c. The image generated by the processor 302 provides ~~An~~ an improved resolution that enables an operator to more accurately and reliably monitor the vascular access.

[0035] Contact impedance between the electrodes and a patient's skin is an important factor which may affect the measurement of internal resistivity. Specifically, if one or more of the electrodes 14 are not fully in contact with the skin of a patient during a voltage measurement, the voltage measurement may be erroneous. The present invention ensures ~~insures~~ that the electrodes 14 are fully in contact with the skin of the patient. For instance, when a voltage measurement is to be taken, the processor 302 is configured to expand the second biasing elements 116, e.g., the balloons, so as to cause the electrodes 14 to fully contact the skin of the patient. To insure that the electrodes are fully in contact with the skin, a pressure in the balloon may be measured and may be increased or decreased as necessary. If the processor 302 determines that the individual pressure of a balloon is outside of a predetermined pressure range--and therefore that the electrode 14 which is moved by that balloon is not fully in contact with the skin--an alerting mechanism, e.g., a visual indicator, an audible alarm, etc., may be employed to alert the operator before the voltage measurement is taken. When the electrode supporting unit 104 is required to be moved or rotated, the balloons ~~maybe~~ may be deflated sufficiently such that the first biasing element 114, e.g., the spring, may overcome the force exerted by the balloon, thereby moving the electrodes 14 away from the skin of the patient. Once the electrode supporting ring 104 is rotated and in a next desired position, the balloons may be pressurized again so as to bring the electrodes into full contact with the skin again.

Please replace paragraph [0050] with the following amended paragraph:

[0050] Thus, the system and method of the present invention, by measuring and monitoring a vascular access in a hemodialysis patient for the purpose of generating an image of the vascular access, enables a determination at an early stage when, e.g., a thrombosis, of the vascular access has occurred. In addition, the present invention may also be employed to measure and monitor vessels in other body parts, e.g., a portion of a leg such as a calf, to determine whether there exists a venous thrombosis--a common clinical problem experienced by patients. Still further, the system and method of the present invention may be employed for detecting stiffness of blood vessels of atherosclerotic plaques ~~plagues~~, or may be employed to generate an image of a patient's chest if sized appropriately.